Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands	)	WT Docket No. 03-66 RM-10586
	)	
Part 1 of the Commission's Rules – Further Competitive Bidding Procedures	)	WT Docket No. 03-67
	)	
Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and the Instructional Television Fixed Service Amendment of Parts 21 and 74 to Engage in Fixed Two-way Transmissions	)	MM Docket No. 97-217
	)	
Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Licensing in the Multipoint Distribution Service and in the Instructional Television Fixed Service for the Gulf of Mexico	)	WT Docket No. 02-68 RM-9718

COMMENTS OF INTEL CORPORATION

I. INTRODUCTION AND SUMMARY

Intel Corporation hereby submits this comment in response to the above referenced Notice of Proposed Rulemaking. Intel is the world's largest semiconductor manufacturer and a leader in technical innovation. Intel is also a leading manufacturer of communications and networking chips and equipment.

Intel believes that the current regulatory regime for Multichannel Multipoint Distribution Service (MMDS) and the Instructional Fixed Service (ITFS) in the 2500 to 2690 MHz band is impeding the deployment of efficient new technology that could enable valuable new uses such as wireless broadband access. The impetus behind this rulemaking is the "Coalition" proposal of the Wireless Communications Association International, Inc. (WCA), the National ITFS Association (NIA) and the Catholic Television Network (CTN) to revise the MMDS and ITFS rules. Intel recommends the Commission adopt a two-step approach that implements many of the reforms proposed by the Coalition, but complement them with a 2-sided auction or "simultaneous exchange."

a. Current Problems

This band is currently used for one-way video services, even though its use for two-way broadband services would likely be far more valuable. As discussed below, the development and success of Wi-Fi and other wireless broadband technologies suggest that such uses could be highly valuable. But, as the Coalition stated in its original proposal, the current licensing regime is precluding MMDS and ITFS licensees from taking advantage of next generation broadband technology.[1]

It maintained the existing regulatory regime creates several obstacles to such innovation including:

- Adoption of new broadband technology would require numerous applications that would create substantial administrative burdens and delays.
- Professional installation and notice requirements and other restrictions impede the retail distribution of MMDS/ITFS services.
- Overly preclusive interference protection rules effectively prevent operators from offering ubiquitous coverage for non-stationary devices such as laptops.

[1] WCA, NIA & CTN, *A Proposal For Revising the MDS and ITFS Regulatory Regime*, October 7, 2002, p. 7.

- The current interleaved band plan precludes broadband service unless the adjacent interleaved channel licensee agrees.[2]

Additionally, private efforts to move the spectrum to new more highly valued uses are made difficult by the site licensing of the ITFS spectrum which has left unassigned areas or "white spaces" and by ill-defined interference rights that frustrate the ability of parties to reach negotiated settlements.

b. Proposed Reforms

In this rulemaking the Commission proposes a wide range of reforms that would:

- Modify rules to facilitate deployment of next generation, low power systems that can serve non-stationary devices such as laptops,
- Establish a new band for isolating high power, one-way systems from low power, two-way systems,
- Propose the use of a simultaneous exchange as a mechanism for transitioning from the old to the new band plan, and
- Remove regulatory underbrush.[3]

In its original comment on the Coalition proposal, Intel supported the proposed reforms, but recommended that the Commission consider complementing them with staff analysis and recommendations contained in the Spectrum Policy Task Force and OPP Working Paper No. 38. [4]

In this comment, Intel recommends that the Commission adopt a two-step approach. First, it should implement the Coalition's (or a similar) deinterleaved band plan. Then it should hold an auction of the white space areas in the ITFS spectrum. The white space areas should be licensed on a national overlay basis. There should be no limits on eligibility. If an incumbent ITFS licensee turns in its license that license area should become part of the overlay license.

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[2] *Id.* at 7-10.

Intel also believes that Commission should consider structuring the ITFS auction as a simultaneous exchange along the lines discussed in the NPRM. A simultaneous exchange could serve as non-coercive way of moving spectrum to higher valued uses by a date certain and in a way that would substantially reduce the transaction costs of aggregating and disaggregating spectrum by frequency and area.

II. BENEFITS OF WIRELESS SERVICES AND BROADBAND ACCESS

Reforming the 2500 to 2690 MHz band of spectrum could generate enormous consumer benefits. As noted above, the Coalition has stated that current regulatory regime is impeding the use of this band for potentially valuable wireless broadband service. As demonstrated by the rapid growth of Wi-Fi, such wireless services are highly valued in the marketplace and if this spectrum is reformed, it is uniquely situated to meet valuable longer distance wireless broadband needs.

The marketplace and technical success of Wi-Fi illustrate the benefits from wireless broadband service. Wi-Fi is the name that the Wireless Ethernet Compatibility Alliance (now the Wi-Fi Alliance) gave to the wireless standards collectively known as 802.11 – defined by the Institute for Electrical and Electronic Engineers (IEEE). Wi-Fi devices operate today in the 2.4 and 5 GHz unlicensed bands. The pace of Wi-Fi deployment and the expansion of Wi-Fi product lines have been impressive. Although 802.11 products did not begin shipping in significant volume until 1999, the growth has

[3] *Id.* at 11.
[4] Intel Reply Comment at.4

been staggering. Sales have increased from 7.9 million wireless LAN chipsets in 2001 to a projected 23-25 million chipsets in 2002, according to Allied Business Intelligence.[5]

The 2500 to 2690 band could be used to provide additional wireless broadband services that could both compete with and complement Wi-Fi and other broadband services. A group similar to the Wi-Fi Alliance has formed Wi-MAX (Worldwide Interoperability for Microwave Access Forum), a non-profit organization of leading equipment and component manufacturers who are promoting wide-scale deployments of point to multipoint wireless networks. The leading Wi-MAX technology (known as 802.16) can serve subscribers up to 30 miles away, thus benefiting customers who cannot gain access to broadband connectivity due to topographical limitations. Wi-MAX could also complement 802.11 by providing "backhaul" to hot spots, especially those not served by cable or DSL. Wi-Fi and Wi-MAX technologies could work together to deliver seamless wireless service to all locations, including remote/rural areas and in developing countries. 802.16 wireless broadband technology could provide shared rates up to 70 Mbps, which could serve several business and home subscribers using a single sector in a base station. This band could also be used for other new wireless broadband technologies. [6]

In sum, the success of Wi-Fi technology demonstrates that there is considerable demand for wireless broadband technology and the promise of WiMax technology on the this spectrum band for use as a longer distance wireless broadband access service

[5] http://www.alliedworld.com/prhtml/wlic03pr.pdf.html

[6] For example, in December 2002 the IEEE established the 802.20 Mobile Wireless Access (MBWA) Working Group. This goal of this new standard would aim to "enable worldwide deployment of affordable, ubiquitous, always-on and interoperable multi-vendor mobile broadband wireless access networks that meet the needs of business and residential end user markets." http://grouper.ieee.org/groups/802/20/ Applications of this type of service would include: mobile and

suggests that reforming this spectrum could generate enormous consumer benefits particularly in underserved areas.

III. ANALYSIS AND RECOMMENDATIONS

Intel believes that this rulemaking can achieve significant reform that would promote efficient use of this spectrum so that the industry may deploy innovative technology. Intel recommends the Commission adopt the reforms proposed by the Coalition, but consider complementary reforms. As discussed below, we believe the Commission should consider a two-step approach that would keep the efficiency and voluntary advantages of the Coalition proposal but which would provide more marketplace certainty and reduce the transactions costs of moving this spectrum to higher valued uses.

a. The Coalition Proposal's Strengths

The Coalition proposal has several strengths. First, it "de-interleaves" both the MMDS and ITFS licenses. By separating the low and high power bands, it will facilitate the deployment of portable and mobile two-way data services. Second, it proposes a mechanism for transitioning to the restructured band plan, albeit on a market by market basis. Third, it proposes the assignment of geographic overlay licenses, thus providing for greater technical flexibility and the assignment of "white spaces."

b. The Coalition Proposal's Weaknesses

The proposal also has important weaknesses. The proposed market-by-market transition does not establish a firm deadline for restructuring this band and it entails

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ubiquitous Internet access, transparent support of Internet applications and access to enterprise intranet services. http://grouper.ieee.org/groups/802/20/P_Docs/IEEE%20802.20%20PD-04.pdf, p. 5

substantial transaction costs that could discourage aggregation and disaggregation of spectrum by frequency and area. Indeed, this approach could lead to a prolonged uncertain transition. Such marketplace uncertainty could increase the risk of investments that require a substantial upfront commitment and whose success requires national reach. The evolution of the cellular market structure to six national carriers has demonstrated that there can be enormous benefits in achieving a national scope. As we have discussed, Wi-MAX (802.16) is a promising two-way data service technology, but it could be much more useful if is reliably available nationwide so that users may roam freely from location to location without losing connectivity. Also, long lead times exist for research and development of new technologies. Greater certainty on how much and when this spectrum will become available for new uses would create a more attractive environment for innovation and investment.

c. The Commission Should Implement A Two-step Approach

Intel recommends the Commission adopt a two-step approach that implements many of the reforms proposed by the Coalition, but complements them with a simultaneous exchange as discussed in OPP Working Paper No. 38 and proposed in the NPRM. First, the Commission should adopt the Coalition's (or a similar) deinterleaved band plan. The market by market transition plan proposed by the Coalition should be kept as a default.

Second, and before the actual change in licenses in accordance with the new band plan, the FCC should hold an auction of the white space areas in the ITFS spectrum. The white space areas should be licensed on a national overlay basis. There should be no

limits on eligibility. Excluding non ITFS eligibles would unnecessarily limit the benefits to be achieved from new uses of this spectrum. If an incumbent ITFS licensee turns in its license that license area should become part of the overlay license.

The Commission should consider structuring the ITFS auction as simultaneous exchange along the lines discussed in the NPRM. A simultaneous exchange could serve as non-coercive way of moving spectrum to higher valued uses by a date certain and in a way that would substantially reduce transaction costs of aggregating and disaggregating spectrum by frequency and area. It would also help establish a more certain marketplace which would be more conducive to investment in longer distance, wireless broadband services such as Wi-MAX.

IV. CONCLUSION

For the reasons and in the manner stated above, Intel supports reforming the MMDS and ITFS regulatory regime, because it would serve the larger public interest by fostering more highly valued use of this spectrum.

Respectfully submitted,

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